REMARKS/ARGUMENTS

Applicants respectfully request that the above application be reconsidered in view of the above amendments and the following remarks. Claims 1-25 are currently pending.

A. Response to Rejection of Claims 1-5, 7, 15-20 and 22-24 under 35 USC 102(b) as Anticipated by U.S. Patent 6,019,669 (Kitao et al.)

The Examiner has maintained the rejection of Claims 1-5, 7, 15-20 and 22-24 under 35 USC 102(b) as anticipated by U.S. Patent 6,019,669 (Kitao et al.) For convenience, the rejection is repeated below.

1. Regarding Claims 1 and 18, the '669 reference is cited as disclosing a lens shape measuring apparatus comprising: a fixture to hold an impressionable material in a fixed position against a surface feature for the period needed for the impressionable material to conform to the surface feature and register the shape of the surface feature; said fixture removable such that the profile created in the impressionable material remains substantially unchanged by removal; and said fixture mountable in a profiling device repeatably from measurement to measurement.

2. Regarding Claims 2, 15 and 22, the '669 reference is said to disclose: a fixture to hold an impressionable material in fixed position against an edge for the period needed for the impressionable material to conform to the edge and register the shape of the edge; said fixture having a positioning element and a measuring element, said measuring element removably fitted to said positioning element in a manner to hold said measuring element in alignment with said positioning element. It is also said that the stepping motor is actuated by means of the calculation/control circuit 100 to move the carriage.

3. It is stated that in figure 7, 8b-d, 9-10, claims 3 and 16, the measuring element has a free axis (Z-X) of movement such that the impressionable material may be moved toward or away from the edge being profiled.

4. Regarding Claims 4, 17, 19 and 23, it is said that the '669 reference teaches an apparatus further comprising an adjustable stepped gage block to regulate the position of the impressionable material in relation to the edge being measured.

5. Regarding Claims 5, 7, 20 and 24, it is said that the fixture contacts at least one datum of the part being measured to provide a reference location.

In the Office Action, the Examiner has noted a definition of impressionable is "capable of being easily impressed". Moreover, U.S. Patent 6,090,027 has been cited as disclosing cuts made to an impressionable substrate.

Applicants respectfully traverse the rejection.

To clarify the differences between the impressionable material herein and the hard eyeglass lens disclosed in the '669 reference that must hold its shape at all times, Applicants' claims have been amended to specify that the impressionable material is a plastic impressionable material. This is described in paragraph [0028] of the specification. Such a material can be softened to conform to the surface feature and register the shape of the surface feature, and then hardened such that the profile created in the impressionable material remains substantially unchanged by removal. Such a material is considerably different from the hard eyeglass lens of the reference, as apparently recognized by the Examiner in indicating that Claims 13 and 14 would be allowable if rewritten in independent form. Accordingly, reconsideration and allowance of Claims 1-25 are respectfully requested.

For completeness, Applicants also maintain that Claims 1-25 are allowable over the '669 reference for the following reasons repeated from the March 17, 2005 Response in the present application.

The '669 reference describes in column 1, lines 56-65 a lens shape measuring apparatus capable of determining the degree of a difference in surface level of an eyeglass lens based on measurement data obtained by a feeler and, when the level difference is great, measuring the edge thickness of the lens on the whole edge thereof by controlling the rotational direction of the lens or controlling the contact position of the feeler with the lens, and as a result edging the uncut lens so as to have an exact fit to an eyeglass frame.

In contrast, Applicants' invention relates to an apparatus and method for using an impressionable material such as a heated wax for conforming to a surface feature such as a machined edge resulting from the action of a cutting tool. The fixed impression so formed is registered in the impressionable material and then removed after the impressionable material has hardened. The impressionable material is then placed in a profiling machine in a manner that ensures that the profile of the impressionable material is reliably placed in the same position under the profiling head from measurement to measurement.

The '669 reference does not seek to form a fixed static impression of a surface feature such as an edge, does not use an impressionable material to do so, does not seek to measure the shape of a surface feature but rather its presence, and does not seek to reliably place a profile formed by the impressionable material into a profiling machine for measurement. Furthermore, the '669 reference offers no method for conformally forming measurable profiles of edges or other surface features, does not provide a removable fixture for placement in a measuring apparatus, and does not offer any method for reproducibly placing a profiling material or measuring apparatus in position for repeated measurements of a surface feature.

Rather, the '669 reference, at lines 56-65, measures the degree of difference in surface level of an eyeglass lens using a dynamic feeler that contacts the lens, is concerned with the thickness of a lens which is solid and not impressionable, actually modifies the perimeter of the lens to shape it to fit eyeglass frames, and uses dynamically acquired information to control the perimeter shape modification part of the apparatus.

The Examiner has rejected Claims 1 and 18 under 35 USC 102(b) as being anticipated by the '669 reference. The '669 device is a dynamic device sensing parameters relevant to grinding the side of a lens inserted in the apparatus and grinding the lens to fit an eyeglass frame. Applicants respectfully submit that an eyeglass lens is not an impressionable material. Rather, an eyeglass lens is necessarily a hard unyielding material which must hold its shape at all times to be functional and requires grinding to shape it. In contrast, the invention comprises a device for holding an impressionable material such as a heated wax against a surface feature to capture and measure the profile of that surface feature. This is done by statically contacting the surface feature with the impressionable material held in fixed position and, while fixedly in contact with the surface feature, allowing the impressionable material to harden and form a profile of the surface feature. The fixture is made so that the profile can be subsequently removed while still in the apparatus, and the apparatus is designed so that the fixture can be mounted in an external profiling device repeatably from measurement to measurement.

While the '669 reference does sense information about a lens surface, it does so dynamically using a method that electromechanically registers surface features, particularly, the presence of a bifocal convex or concave shape, and has a grinding apparatus for shaping the perimeter or side of the hard lens. The '669 reference does not recover any information about machined parts. Rather, it uses the feeler information to control the action of the grinding

portion of the apparatus. The feeler of the '669 reference, at column 2, lines 3-26, simply touches the lens in a dynamic manner and does not conform or change its shape fixedly or in any way at all.

After the lens is mounted in the '669 apparatus, its side is shaped in perimeter and removed. No provision is made by the '669 reference to replace the lens in a repeatable position in the apparatus or any other measuring apparatus. The '669 reference also does not disclose subsequently profiling the lens in a manner that is repeatable from measurement to measurement. The lens of the '669 reference, once the side is ground to proper shape, simply fits an eyeglass frame. Once the lens is removed from the '669 apparatus, the apparatus is ready to grind the next lens. No reference position is retained by the '669 apparatus and any positional reference to a previously ground lens is lost by the '669 apparatus when the lens is removed.

As discussed above, the '669 reference does not disclose or suggest the apparatus or method of Claims 1 or 18. Accordingly, Applicants submit that Claims 1 and 18 are patentable over the '669 reference.

As to Claims 2, 15 and 22, the Examiner has referred to the lens as being composed of impressionable material. Applicants again respectfully submit that as used in the '669 reference an eyeglass lens is not an impressionable material. Neither is the feeler end that measures the shape of the lens. In the '669 reference, the feeler must be hard enough to dynamically ride on the surface of the lens and sense the shape of the lens. Clearly, the feeler must only touch the surface and ride along the surface, and not conform to it in the sense of an impressionable material such as in the invention. An eyeglass lens as used in the '669 reference is necessarily a hard unyielding material that must hold its shape at all times to be functional, and requires grinding to shape it. In the '669 reference, no molding of the lens is done nor is any impression taken. Rather, the hard material is so difficult to shape that it must be ground.

In Applicants' invention, edges are surface features, though a surface feature is not necessarily an edge. The application describes a device for holding a piece of impressionable material such as a heated wax against a surface feature to register and measure the profile of that surface feature. This is done by fixedly contacting the edge or other surface feature with the impressionable material and, while fixedly in contact with the edge or other surface feature, allowing the impressionable material to conform, harden and register its shape. Subsequently,

the profile is removed while still in the measuring element of the apparatus and measured in an external profiling device.

The positioning element of the '669 reference is designed to register facts about the shape of a lens surface. It does so dynamically using a method that electromechanically registers the existence of surface features and has a grinding apparatus for shaping the perimeter of the hard lens. Further, the measuring device of the '669 reference is not designed to be removed from the lens shaping machine, and only measures a lens when the lens is situate in the machine.

In her comments, the Examiner has termed the lens impressionable material. As noted above, a lens so hard that it must be ground to shape is not an impressionable material within the meaning of the application. The Examiner also states that the impressionable material may be moved toward or away from the edge being profiled. If the lens is an impressionable material, this is not possible. In the '669 reference the lens is held in place and only rotates. Consequently, the impressionable material cannot be moved in a Z-X direction at all, as the Examiner contends.

In the application, the positioning element is registered in place by at least one fixed datum on the part being measured. No such datum need exist in the '669 reference, especially if the lens to be ground is not a multi-focal lens. The '669 reference has no positioning element to measure from a fixed static location (datum) on the part to be measured. Rather, the '669 apparatus merely senses the presence of a bifocal lens and grinds the shape of the lens accordingly. Further, the '669 reference has no removable positioning element or removable measuring element, does not fit a measuring element and a positioning element together or hold them in alignment with each other, and uses no impressionable material to conform to a shape of a part. Instead, a hard infusible material is ground to a predetermined shape around its perimeter. The '669 reference also does not recover any information about the shape of the part that is measured but uses its dynamic measurements to calculate how to grind the lens to eyeglass frame shape. The application does not change the shape of the surface feature but merely seeks to recover information about the surface feature, allowing the measuring element to be mounted in a profiling device repeatably from measurement to measurement. In addition the '669 reference gathers no information about previously machined parts. The '669 reference uses the feeler information to control the action of the grinding portion of the apparatus. The feeler of the '669

reference, at column 2, lines 3-26, simply touches the lens in a dynamic manner and does not change its shape statically or in any way at all.

The movement of the lens edge thickness measuring unit 60 of the '669 reference is intended to dynamically sense the presence of the lens surface features. In contrast, the movement of the positioning element 24 of the application places the impressionable material such as a heated wax in fixed contact with a surface feature and conformally registers the shape of the surface feature. Further, the feeler 66 of the '669 reference must necessarily be made of relatively non-conformable material to accurately determine the features of the lens surface.

As discussed above, the '669 reference does not disclose or suggest the apparatus or method of Claims 2, 15 or 22. Accordingly, Applicants submit that Claims 2, 15 and 22 are patentable over the '669 reference.

Regarding Claims 4, 17, 19 and 23, the Examiner has again referred to the lens as being composed of impressionable material. Applicants again submit that as used in the '669 reference an eyeglass lens is not an impressionable material. Neither is the feeler end that measures the shape of the lens an impressionable material. In the '669 reference, the feeler must be hard enough to ride on the surface of the lens and sense the shape of the lens.

The Examiner contends that a stepping motor could be used to replace the stepped gage block of the application. However, as discussed above, the '669 reference does not disclose or suggest the apparatus or method of Claims 1, 15, 18 and 22, upon which Claims 4, 17, 19 and 23 are dependent. Accordingly, Claims 4, 17, 19 and 23 are patentable over the '669 reference.

Regarding Claims 5, 7, 20 and 24, the Examiner contends that rotating shafts 16 and 17 of the '669 reference constitute a fixture for holding and rotating the lens that is being shaped to fit an eyeglass frame, citing the contact with the lens as providing a reference point or datum of the lens being measured.

Applicants note that the '669 reference does not provide a two part measuring device wherein one of the parts is specifically designed to fixedly register the position of the other part with regard to the object being measured as described in paragraphs 0024, 0025 and 0026 of the application.

Further, the rotating shafts 16 and 17 as shown in figure 7 of the '669 reference dynamically hold the lens in place and rotate it while it is being measured and ground by the rest of the '669 apparatus. They do not constitute a fixed, static datum as does the datum of the

invention. Rather, the shafts are dynamic in operation, are driven by the apparatus in their rotation, and are not used as a reference position of the part until the lens is measured by other means. It is not until that is done that the positioning of the lens with respect to the grinding of the lens perimeter is referenced to the degree of rotation of shafts 16 and 17. In view of this distinction, Applicants assert that Claims 5, 7, 20 and 24 are patentable over the '669 reference.

For the foregoing reasons, Applicants submit that Claims 1-5, 7, 15-20 and 22-24 are not anticipated by or obvious over the '669 reference. Reconsideration and withdrawal of the rejection is requested.

B. Allowable Subject Matter

Claims 6, 8-14, 21 and 25 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Applicants traverse this objection on the basis of the arguments presented in section A.

C. Conclusion

It is believed that the above represents a complete response to the Examiner's rejection and places the application in condition for allowance. Accordingly, reconsideration and allowance of Claims 1-25 are respectfully requested.

Applicants would appreciate the courtesy of a telephone call should the Examiner have any questions or comments with respect to this response.

Respectfully submitted,

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